Declassified in Part - Sanitized Copy Approved for Release 2012/04/10 : CIA-RDP78-03172A000300050042-9

25X1

October 3, 1957

25X1

Dear Sir:

Enclosed please find three (3) copies of Progress Report No. 8 on Project No. A-100 covering the month of August, 1957.

Expenditures during the month of August amounted to $1,806.43, leaving an uncommitted and unexpended balance of approximately $10,760.41.

Sincerely yours,

25X1

C-1473

3 encls.
RWB/es

CONFIDENTIAL

25X1

Declassified in Part - Sanitized Copy Approved for Release 2012/04/10 : CIA-RDP78-03172A000300050042-9

Declassified in Part - Sanitized Copy Approved for Release 2012/04/10 : CIA-RDP78-03172A000300050042-9

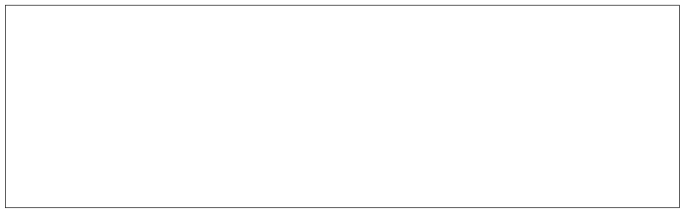
25X1

Project No. A-100

THICKNESS MEASUREMENT OF NON-METALLIC MATERIALS

Progress Report No. 8

for



25X1

October 3, 1957

Copy No. 1

25X1

Declassified in Part - Sanitized Copy Approved for Release 2012/04/10 : CIA-RDP78-03172A000300050042-9

25X1
Declassified in Part - Sanitized Copy Approved for Release 2012/04/10 : CIA-RDP78-03172A000300050042-9

Page Denied

Declassified in Part - Sanitized Copy Approved for Release 2012/04/10 : CIA-RDP78-03172A000300050042-9

Declassified in Part - Sanitized Copy Approved for Release 2012/04/10 : CIA-RDP78-03172A000300050042-9

25X1

October 3, 1957

25X1

Dear Sir:

Enclosed please find three (3) copies of Progress Report No. 8 on Project No. A-100 covering the month of August, 1957.

Expenditures during the month of August amounted to $1,806.43, leaving an uncommitted and unexpended balance of approximately $10,760.41.

Sincerely yours,

25X1

C-1473

3 encls.
RWB/es

CONFIDENTIAL

25X1

Declassified in Part - Sanitized Copy Approved for Release 2012/04/10 : CIA-RDP78-03172A000300050042-9

Declassified in Part - Sanitized Copy Approved for Release 2012/04/10 : CIA-RDP78-03172A000300050042-9

THICKNESS MEASUREMENT OF NON-METALLIC MATERIALS

CONFIDENTIAL

I. INTRODUCTION

25X1

This is a report of the progress of [redacted] Project No. A-100 during the period from August 1 to August 31, 1957. The purpose of this project is to develop an ultrasonic method of measuring the thickness of non-metallic materials, with the restriction that all measurements must be made from one face of the sample.

II. PROGRESS

The measurement of either the resonant frequencies of the sample or the travel time of a train of compressional waves in the sample will allow the determination of the thickness of the sample. The latter method has been the main subject of the work covered by this report.

Much attention has been devoted to the problem of obtaining a sufficiently short duration for the signal. Since the granular nature of some materials to be measured prevents the use of frequencies much above 100 kilocycles per second, and since it is desired to make measurements at least down to three inches, the ultrasonic signal can contain no more than a few cycles.

The shape of the ultrasonic burst emitted by the transducer can be controlled by the electrical signal applied to the transducer, by mechanical damping or by a combination of both. Previous work had concentrated on mechanical damping but the work for the period of this report has also been directed towards achieving a measure of damping by controlling the application of the electrical energy to the transducer.

CONFIDENTIAL

Declassified in Part - Sanitized Copy Approved for Release 2012/04/10 : CIA-RDP78-03172A000300050042-9

Declassified in Part - Sanitized Copy Approved for Release 2012/04/10 : CIA-RDP78-03172A000300050042-9

CONFIDENTIA

Two methods seem to show some promise. The first of these is the application of two electrical pulses to the transducer, so separated that the oscillations they produce are out of phase and thus cancel. The second of the methods is to place, across the output of the pulser, a thyratron which, after the oscillation has continued for a certain period, is made to conduct and so short the output and the transducer. Both methods do give an accelerated decay of the signal, although both have drawbacks that must be overcome.

III. FUTURE WORK

The results with the devices described above do show promise, especially at high frequencies. New barium titanate transducers, which should operate with this apparatus in the frequency range of importance to this program, have been ordered.

IV. NOTEBOOKS

The work reported here is recorded in [redacted] Notebooks No. 25X1 C-6880 and C-6516.

V. CONTRIBUTING PERSONNEL

The work reported here has been done by [redacted] under 25X1 the active supervision of [redacted] 25X1

Respectfully submitted,

[redacted] 25X1

APPROVED:

[redacted] 25X1

CONFIDENTIAL

Declassified in Part - Sanitized Copy Approved for Release 2012/04/10 : CIA-RDP78-03172A000300050042-9